



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,988	01/07/2004	Farid Chemat	00366.000187	3580
5514 7590 01/22/2008 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER LEFF, STEVEN N	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 01/22/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/751,988	<b>Applicant(s)</b> CHEMAT ET AL.	
	<b>Examiner</b> Steven Leff	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 16-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
  - With respect specifically to claim 1 the phrase "maintaining a normal pressure in the microwave chamber" is rejected as it is a relative phrase, which renders the claim indefinite. The term "maintaining a normal pressure in the microwave chamber" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention since it is unclear as to what difference is encompassed by this phrase, if not a "normal". It is not clear what pressure level is encompassed by the term "normal". "Normal" pressure at sea level would not be considered "normal" at high altitudes and vice versa.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- Claims 1-5, 10, 12, 14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mengal et al. (CA 2161127).

With respect to claims 1-5, 10, 12, 14, 16, and 17, Mengal et al. teach a method of extracting a volatile natural substance from a biological material, wherein the biological material contains water (pg. 5 line 1-2). More specifically Mengal et al. teach introducing a biological material into a microwave chamber

with the exclusion of solvent (pg. 5 line 15+), maintaining a normal pressure in microwave chamber (pg. 10 lines 5-8), irradiating the biological material with microwaves (pg. 7 line 3+) until at least some of the natural substance is released from the biological material (pg. 7 line 22+), where during irradiation the biological material is present in an atmosphere with reduced pressure (pg. 4 line 20, pg. 5 line 18+), conveying the released natural substance from the microwave chamber into a condensation chamber by convection (pg. 9 line 16+), cooling the released natural substance until it condenses (pg. 6 line 20) and finally conveying the released natural substance from the condensation chamber (pg. 9 line 16+).

Mengal et al. continue by teaching that the microwave chamber and the condensation chamber are parts of a closed system (fig. 1), that the natural substance is a plant oil (col. 5 line 1), and that the microwave irradiation is controlled in such a way that a temperature below 100°C prevails in the microwave chamber (pg. 6 line 30). In addition, Mengal et al. teach that the biological material is stirred for improved exposure (pg. 7 line 13). With respect to the condensation chamber, Mengal et al. teach that the condensation chamber is cooled in the wall region (pg. 9 line 14), and further the condensation chamber has the form of a vertically oriented cylinder (fig. 1). Mengal et al. further teach that the water discharged with the natural substance is fed to the microwave chamber (pg. 9 line 20-21).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mengal et al. (CA 2161127) in view of Chen et al. (Determination of dichlorvos by on-line microwave-assisted extraction... Journal of Chromatography; 2002.)

Mengal et al. is taken as above, however Mengal et al. does not teach that the microwave chamber has an obliquely arranged, rotatable receiving container for improved exposure of the biological material.

With respect to claim 6, Chen et al. teach a solvent-less method of irradiating vegetables using microwaves, and a cooling condenser connected therewith for the recovery of specific by-products. More specifically Chen et al. teach an obliquely arranged, rotatable receiving container for improved exposure of the biological material (fig. 1, pg. 351).

Thus, although Mengal et al. does not teach an obliquely arranged container, Mengal et al. does teach agitating the material during its exposure for its art recognized and applicant's intended purpose of increasing the exposure of the material during treatment. In addition, Chen et al. does teach obliquely arranging the container with the microwave environment. Thus one of ordinary skill in the art would have been motivated to combine the teachings of Mengal et al. and Chen et al. and provided an obliquely arranged container within the microwave treatment environment due to the fact that Mengal et al. teach the advantage of increasing the exposed surface area throughout the treatment, and where Chen et al. further teach obliquely arranging the container within treatment chamber for its art recognized and applicant's intended purpose of increasing the exposure of the material during treatment.

Therefore it would have been obvious to one of ordinary skill in the art to further incorporate an obliquely arranged container within the microwave chamber into the invention of Mengal et al. since both are directed to solvent-less microwave treatment, since Mengal et al. already teaches the advantage of increasing the exposure of the material during treatment, and since Chen et al. specifically teach obliquely arranging the container within treatment chamber for its art recognized and applicant's intended purpose of increasing the exposure of

the material during treatment, thereby reducing the overall required power or time consumption to treat a specific material, and thereby decreasing the processing costs required to produce the product.

- Claim 7-9, and 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengal et al. (CA 2161127) in view of Malvin et al. (3578567).

Mengal et al. is taken as above, however Mengal et al. does not teach that the condensation chamber is separated from the microwave chamber by a partition which has an upwardly tapering form and has an air-permeable aperture in the upper region, where the partition is made of plastic or glass, that the substance is discharged via gravitational force, or that heat is fed into a transition region between the microwave chamber and the condensation chamber to assist convection.

With respect to claims 7-9, Malvin et al. teach that the condensation chamber is separated from the microwave chamber by a partition which has an upwardly tapering form and has an air-permeable aperture in the upper region (col. 4 line 4+), where the partition is made of plastic or glass (col. 4 line 5), and that heat is fed into a transition region between the microwave chamber and the condensation chamber to assist convection (col. 3 line 42+).

Therefore with respect to claims 7-8, one of ordinary skill the art would have been motivated to combine the teaching of Mengal et al. and Malvin et al. and provided a partition which has an upwardly tapering form and has an air-permeable aperture in the upper region (col. 4 line 4+), where the partition is made of plastic or glass (col. 4 line 5) for its art recognized and applicant's intended purpose of causing specific vapors to travel through a closed chamber and out of the chamber to a condenser with reduced turbulence, and further providing a barrier which allows only vapor to pass there through due to the upwardly tapering form, where the liquid within is forced to stay within chamber due to the barrier and thus may be collected. With respect claim 8, which teaches that partition is glass or plastic, Malvin et al. specifically teach an inert material for its art recognized and applicant's intended purpose of providing a partition, which will withstand extreme conditions without affecting the purity of the desired material.

Regarding claim 9, one of ordinary skill in the art would have been motivated to combine the teaching of Mengal et al. and Malvin et al. and feed heat into a transition region between the microwave chamber and the condensation chamber for its art recognized and applicant's intended purpose of assisting convection (col. 4 line 8+) due to the fact that Mengal et al. teaches heating the microwave chamber in order to reduce the drop in temperature when the pressure is reduced within the chamber.

In addition, regarding claim 13, Mengal et al. does teach at figure 1, a downwardly directed valve used to collect the product, however Mengal et al. does not specifically state that the substance is discharged via gravitational force however Malvin et al. does teach this limitation at figure 1, reference number 54, and therefore one of ordinary skill in the art would have been motivated to combine the teaching of Mengal et al. and Malvin et al. due to the fact that gravitational force does not require any additional power means for recovering the desired liquid product.

Therefore it would have been obvious to one of ordinary skill in the art to teach that the condensation chamber is separated from the microwave chamber by a partition which has an upwardly tapering form and has an air-permeable aperture in the upper region, where the partition is made of plastic or glass, or that the substance is discharged via gravitational force in addition to feeding heat into a transition region between the microwave chamber and the condensation chamber into the invention of Mengal et al. since both are directed to microwave treatment and subsequent condensing of a vapor, since Mengal et al. already teaches the advantage of increasing the temperature to compensate for a reduction in overall temperature in order to assist in convection, and since Chen et al. specifically teach the aforementioned limitations for their art recognized and applicant's intended purpose of assisting in extracting a volatile natural substance from a biological material, thereby reducing the overall required power or time consumption to treat a specific material, due to the fact that the vapor will not begin to condense prior to actually reaching the condenser and thereby increasing the overall output of the process required to produce the product.

- Claims 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mengal et al. (CA 2161127).

Mengal et al. is taken as above, however Mengal et al. does not teach the condensation chamber is cooled by water cooling, or specifically that the discharged water is at least partially separated from the natural substance by an overflow device and is fed to the microwave chamber.

With respect to claim 11, Mengal et al. does teach that the condensation chamber is cooled in the wall region, where Mengal et al. further teach providing refrigeration means formed by a winding tube in which the liquid circulates, and therefore that the selection of a known process based on its suitability for its intended use supports a prima facie obviousness determination (MPEP 2144.07), due to the fact refrigerant is well known in that art as an alternative to water.

Regarding claim 15, although Mengal et al. does not specifically teach that the discharged water is at least partially separated from the natural substance by an overflow device and is fed to the microwave chamber, Mengal et al. does teach that the water discharged with the natural substance is fed to the microwave chamber (pg. 9 line 20-21), after decantation, where decanting is the process of transferring "liquid from one vessel in order to separate a small volume of liquid, containing the sediment, from a larger volume of "clear" liquid, which is free of such. In the process, the sediment is left in the original vessel, and the clear liquid is transferred to the decanter" (reference. COM.).

Therefore it would have been obvious to one of ordinary skill in the art to teach that the condensation chamber is cooled by water cooling, or specifically that the discharged water is at least partially separated from the natural substance by an overflow device and is fed to the microwave chamber into the invention of Mengal et al. since Mengal et al. already teaches the advantage of providing refrigeration means formed by a winding tube in which the liquid circulates, as well as the advantage of decanting for their art recognized and applicant's intended purpose of assisting in extracting a volatile natural substance from a biological material, thereby reducing the overall required power needed, and costs since water is readily available and cheaper than a refrigerant, and where the overflow device allows for continual production and thus increased production since the water is being re-circulated.



### ***Response to Arguments***

With respect to applicant's argument that Mengal et al. is silent with respect to maintaining a normal pressure, it is noted that the claim is drawn to a normal pressure where during irradiation some of the biological substance is released from the biological material and thus the normal pressure of Mengal et al. is taken as the pressure, under vacuum and the ambient pressure as this is the "normal pressure" of Mengal et al. where during irradiation some of the biological substance is released from the biological material (pg. 10 line 6-7).

With respect to applicant's argument with respect to the combination of Mengal et al. and Chen et al. that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Chen is merely being relied upon for its teaching of an obliquely arranged, rotatable receiving container for its art recognized and applicant's intended purpose of improving exposure of the biological material (fig. 1 pg. 351).

It is further noted with respect to Mengal et al. in view of Melvin et al. that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Where Melvin et al. is directed to collecting volatile substances using a partition.

Regarding applicant's argument with respect to claims 11 and 15 that Mengal et al. does not suggest a normal pressure applicant is directed to the explanation above with respect to "normal pressure", where it is further noted that claims 11 and 15 are drawn to water cooling and feeding water discharged from the natural substance to the microwave chamber respectively.

**Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

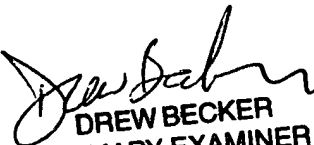
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Leff whose telephone number is (571) 272-6527. The examiner can normally be reached on Mon-Fri 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached at (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

5824  
1/18/08

  
DREW BECKER  
PRIMARY EXAMINER  
1/17/08

SL